EFO1. Defining preceptorship: A job analysis to describe the role of the pharmacy preceptor

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Keywords: Job analysis, job development, clinical teaching (health professions), role perception, expertise

Objective: To conduct a job analysis to identify and describe the roles and responsibilities of pharmacist preceptors.

Method: A task inventory questionnaire was created in collaboration with pharmacist preceptors, which included 92 tasks divided among nine domains related to the job of preceptors. The task inventory questionnaire was distributed to expert pharmacist preceptors, which were those who have been recognized in the United States for excellence in precepting by a national organization. Participants evaluated each task and determined if they were responsible for the task, as well as the importance, difficulty, and frequency of each task. A composite score for each task was calculated based on a unique combination of these ratings. Descriptive statistics summarized the findings for each task and across the domains.

Results: Nineteen pharmacist preceptors completed the task inventory questionnaire. The three most salient domains were: professionalism [41.9 (12.9)], communication [37.0 (11.7)], and interpersonal skills [37.0 (10.3)]. The three most critical tasks related to professionalism: maintaining professional composure in stressful situations, demonstrating a commitment to service and the profession, and engaging in sound ethical and moral decision-making.

Conclusion: This was the first attempt of using a job analysis to define the pharmacist preceptor roles and responsibilities. The job analysis helped categorize tasks based on their importance, difficulty, and frequency—this information can be used in future work to prioritize professional development activities and to find alternative management strategies for tasks that are less impactful or desirable. Overall, this was a significant contribution to understanding and charactering the role of the pharmacy preceptor.

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EFO2. Improving health outcomes for Aboriginal and Torres Strait Islander peoples; the Australian Pharmacy Council journey of social accountability.

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Objective: The Australian 'Close the gap' strategy aims for equity in health status and life expectancy between Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians. Despite 10 years of commitment, the gap remains: the Aboriginal and Torres Strait Islander population have, on average, 2.3 times the disease burden of non-Indigenous people (AIHW 2016).

By setting the standards for education and training of health practitioners accreditation contributes to practitioners acquiring the skills, knowledge and attitudes to improve outcomes for indigenous Australians. Our Australian Pharmacy Council (APC) 2014 pharmacy program Accreditation Standards reference this area, but this year's Standards review provides an opportunity to reframe the standards within a social accountability paradigm (Murray 2012).

Design: As the accreditation authority for pharmacy education, the APC promotes pharmacy as a socially accountable profession, and is committed to the Close the gap strategy, through four active initiatives; publicly committing to a Statement of Intent with other health professions, participating in a cross-profession survey of regulated health professions education providers, training all our people in cultural safety, and reviewing pharmacy education standards with an emphasis on social accountability (Lindgren 2011).

Results: APC commenced cultural safety training for all staff in March 2018. The cross-profession survey results show a commitment to cultural competence in pharmacy programs. The accreditation standards review has included input from indigenous peoples, within a framework of social accountability, includes a focus on cultural safety and references the Aboriginal and Torres Strait Islander Health Curriculum Framework (Commonwealth of Australia 2014).

Conclusion: These achievements to date, while positive, indicate merely a beginning of our APC journey. We are committed to making a meaningful contribution by working respectfully in partnership with our indigenous communities, and our health profession educators to enhance socially accountable pharmacy education to advance the health and wellbeing of all Australians.

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EFO3. Wicked Problems: Using Design Thinking for Curriculum Development in Pharmacy Education

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Keywords: Creative thinking; curriculum design; curriculum development; program design; problem solving

Objective: Health professions education is riddled with ill-defined problems: how to motivate learners, how to assess complex skill sets, how to promote innovation, etc. We aimed to engage educators in the design thinking process to equip them with a framework and strategies to address ill-defined problems in education (Brown, 2008).

Method: In 2018, we conducted an exhaustive literature review, which showed that design thinking has been used sparingly in health professions education (McLaughlin et al, 2019). There was an absence of literature describing processes for teaching educators how to use design thinking, which meant we needed to create a process for helping others apply this framework. We collaborated with individuals of various backgrounds (medicine, education, engineering) to create a 2-hour design thinking workshop for educators. The workshop was highly interactive and modelled various design thinking strategies. Students also participated as users during the session and were interviewed by attendees. Attendees then used these insights to inform their brainstorming and solution generation for various curriculum design challenges. The workshop concluded with a reflection about educational practice and how design thinking can help improve our educational efforts.

Results: Thirty educators attended the workshop. On a scale from 1-very low to 5-very high, the workshop was rated 4.4 for value, 4.6 for quality, and 4.7 for presenter effectiveness. Attendees identified the workshop activities, including students to interview, as the most beneficial aspect of the workshop. We learned that faculty can benefit from this new perspective and design thinking can instil a creative mindset to generate innovative solutions to our challenges in health professions education.

Conclusion: Our design thinking workshop effectively engaged educators in the design thinking process across multiple disciplines and generated valuable discussion on prominent curriculum development topics. Design thinking holds promise as a framework for solving wicked problems in pharmacy education.

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EFO4. Implementation of the RIPE model to enhance patient safety through interdisciplinary education & collaboration

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Keywords: Teamwork, Interprofessional Practice, Interprofessional Education, Reflective Practice

Objective: Develop and implement a novel model of interprofessional learning: *RIPE*: Reflective Interprofessional Education Model to enhance patient safety through interdisciplinary education & collaboration

Design: This unfolding interdisciplinary stroke case was designed to facilitate collaborative decisions between healthcare professional students (pharmacy, nursing, allied health) at simulated 'bedsides'. Based on the pilot model (Lucas et al., 2018), *RIPE* included 12 workstations: (i) 1 x Assembly workstation and case brief, (ii) 1 x research; (ii) 2x education; (iii) 2 x guided reflection; (iv) 5 x medium/high fidelity mannequins; (v) 1 x standardized patient. Participants included; "Pharmacists" *(n*=55) rotated through 12 stations, "nurses" *(n*=8) remained at the 'bedside' workstations, and "resident medical officers" (*n*=2) who 'floated' between workstations. The participants performed designated responsibilities at each workstation. The success of *RIPE* was measured using the university student anonymous feedback process; and thematic analyses of student reflections elicited during focus group sessions (*n*=7). Focus groups were audiotaped and transcribed verbatim for emergent themes.

Results: Emergent themes included (i) Time management: managing interruptions in time pressured acute care environments; (ii) Patient Centered Care: engaging patients and family in care; (iii) Communication: developing skills in interprofessional communication; (iv) Teamwork: recognizing the importance of teamwork, relationships and respect.

Conclusion: Utilizing *RIPE*, pharmacy and nursing students perceived IPC as an important skill development, essential for their integration into hospital environments and for improved patient health outcomes. Sustainability of this model includes the use of selected student mentors from each discipline who are former students of the cohort.

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ERO1. CanMEDS role performance in a 2-year postgraduate workplace-based community pharmacist specialisation programme

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Objective: In the Netherlands, pharmacists have to complete a two-year postgraduate specialisation programme to become registered as community pharmacist specialist (Westein 2018). Performance of trainees in predefined Entrustable Professional Activities (EPA's) is assessed every three months by their supervisors using the seven roles of the CanMEDS-competency framework (van der Vleuten 2012, Tromp 2012). This research aims to find out how the CanMEDS-roles of trainees develop during the two-year programme.

Method: Performance was assessed by the trainees' supervisors at six intermediate timepoints (T1 – T6) using a grading form (1=insufficient, 2=moderate, 3=adequate, 4=good) for each of the seven roles (see Results). The desired final level of performance is 'good' (score 4) for each role. Performance scores were extracted from the portfolios of trainees who entered the programme between January 2012 and September 2015. SPSS v24 was used for analysis.

Results: Data for all six timepoints were available for 265 pharmacists in the programme. Performance improved on all CanMEDS-roles. The mean score ($\pm$ SD) for the role of Pharmaceutical expert increased from 3.23$\pm$0.53 to 3.90$\pm$0.30 between T1 to T6. Scores for other roles increased from 3.05$\pm$0.66 to 3.70$\pm$0.47 (Communicator), from 3.26$\pm$0.62 to 3.81$\pm$0.41 (Collaborator), from 3.16$\pm$0.59 to 3.79$\pm$0.43 (Scholar), from 3.10$\pm$0.56 to 3.74$\pm$0.44 (Health advocate), from 2.81$\pm$0.67 to 3.59$\pm$0.55 (Manager), and from 3.18$\pm$0.57 to 3.80$\pm$0.43 (Professional). The percentage of trainees with 'good' performance at T1 ranged from 13.4% (Manager) to 35.5% (Collaborator). At T6, the percentage of 'good' performance ranged from 61.1% (Manager) to 90.1% (Pharmaceutical Expert).

Conclusion: The 3-monthly performance evaluations confirm trainees' individual progress on all CanMEDS-roles. On average, the performance of trainees was lowest for the role of Manager, and highest for the role of Pharmaceutical expert. Near the end of the specialisation programme, the majority of trainees performed as desired on each of the roles.

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ERO2. Experiential Education Outcomes as Determined by using the CUGH competency statements

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Keywords: Global health, experiential learning, international education

Objective: To examine global health outcomes of students who participated in international clinical rotations utilizing the Consortium of Universities for Global Health (CUGH) competency framework.

Method: A mixed-methods, prospective study assessed final year Doctor of pharmacy students participating in an international clinical rotation (N=81) between 2017-2018 and a matched cohort who did not at the University of North Carolina at Chapel Hill, Purdue University, or the University of Colorado. Students took a retrospective pre-post survey evaluating self-perceived CUGH competency growth for 13 statements using a 5-point Likert scale. Students who completed an international clinical rotation were invited to participate in a focus group. Quantitative survey data analysis utilized paired and independent t-tests and multiple linear regression. Qualitative survey and focus group data followed a two-cycle open coding process using conventional content analysis to map knowledge, skills, and attitudes themes.

Results: International clinical rotation students had significant growth across all statements compared to those who did not participate (mean total score increased 10.25 (7.00) vs. 2.44 (6.00), p<0.001). International clinical rotation participation was the only significant predictor of CUGH growth in the logistic regression model (β=7.87; p<.001). A global health learning progression model emerged from qualitative analysis, illustrating the utilization of new knowledge and skills to make meaning of cultural and patient care differences. Students increased their self-efficacy and transformed personal and professional perspectives.

Conclusion: International clinical rotations led to significant growth across all CUGH competencies and learning outcomes, such as cultural sensitivity development, may be applicable to other health professions.

References:

ERO3. Candidate attributes considered in the appointment of intern hospital pharmacists in Australia – a comparison of recruiter preferences and student perceptions

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Keywords: Recruitment, Employment, Graduates

Objective: Australian pharmacy graduates are required to undertake a one-year paid internship prior to general registration. In recent years, student preferences for hospital employment has increased[1]. Little is known about the preferences of Australian hospital recruiters when appointing graduates, and anecdotally, students lack understanding of recruiters' consideration when making decisions. We aimed to assess factors which contribute to intern selection within Australian hospital pharmacy departments, to assess pharmacy students' perspectives of these factors and to compare the differences between the two groups.

Design: Ethics approval was obtained from Alfred and Barwon Health. Surveys were designed for hospital pharmacy recruitment decision-makers and students. Surveys were distributed via known networks and the results analysed using SPSS (v23; IBM).

Results: 82 pharmacists and 162 students responded. The most important factors for recruiters were professionalism (93.3%), communication skills (89.5%), team-oriented attitude (92.1%), reliability (88%) and command of English language (82.9%). Recruiters generally had broad agreement, with some variance depending on size of hospital, number of interns and states. Students' perceived the most important factors considered by recruiters were professionalism (96.2%), patient-centric attitude (92.5%), reliability (89.9%), team-oriented (86.2%), command of English language (85%). Students also had broad agreement, variances were seen depending on state, year level, previous hospital placement experience and students' preference for internship. Comparing recruiter and student responses, students perceived having a community pharmacy job (p<0.001), clinical knowledge (p<0.001), command of second language (p< 0.001) and GPA (p=0.005) as more important. Hospital recruiters placed more value on prior publication/poster presentation (p=0.004).

Conclusion: Generally, there was broad agreement between hospital recruiters and students on the most important factors considered when employing interns. However, there was significant variance in the perception of students, amongst their own peers and in comparison to hospitals. These findings will provide guidance to prospective hospital interns and their universities.

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ERO4. Where to go and how long to stay

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Keywords: Global education, experiential learning, international education

Objective: To determine the impact of country income classification and rotation duration on learning outcomes for students participating in an international APPE..

Method: A mixed-methods, prospective study evaluated fourth-year pharmacy students participating in an international APPE (N=81) at the University of North Carolina, Purdue University, and University of Colorado. A pre-post survey was administered retrospectively to evaluate self-perceived growth across 13 CUGH global health competencies using a 5-point Likert scale with additional open-ended questions and focus groups. Quantitative data was analysed using paired and independent t-tests and multiple linear regression. Qualitative survey and focus group data underwent a two-cycle open coding process using conventional content analysis to map themes across sub-groups.

Results: Students who went to a low to middle income country (LMIC) had greater growth in all CUGH statements compared to those who went to a high-income country. Rotation location in a LMIC and prior travel for non-vacation purposes were the only statistically significant predictors of growth in the regression model. Qualitative analysis presented three major themes across each income group and no significant themes across APPE duration. Comments from students who went to a LMIC demonstrated cultural progression, altered patient care perspective, and skill development. Comments from students who went to a high-income country displayed increased knowledge regarding healthcare system differences, pharmacy practice and education, and an appreciation for alternative care approaches.

Conclusion: Learning outcomes differed between high and LMIC APPE locations, with both providing valuable educational opportunities that contributed to students' personal and professional development.

References:

ERO5. Addressing student pharmacist stigma related to mental health through a mental health elective

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Keywords: Mental health, Stigma, Social Bias, Elective Courses

Objective: Utilize a mental elective to decrease self-reported stigma related to mental illness.

Method: A 15-item pre- and post-class survey were administered to second and third-year student pharmacists enrolled in a mental health one-credit elective course. The survey consisted of 15 items from the Opening Minds to Stigma Scale for Heath Care Providers[1], including 1) attitudes of health care providers towards people with mental illness, 2) disclosure and help seeking behaviour, and 3) social distance. During the course, student pharmacists received Mental Health First Aid training certification[2] and engaged in activities to gain additional insight about individuals living with a mental illness.

Results: The pre- and post-course surveys resulted in 51 paired responses for a 93% (51/55) response rate. When comparing each individual's pre to post responses, significantly less stigma was reported in 5 of the 15 question items following completion of mental health elective ($p < 0.05$). The greatest change was observed with the survey item, "Despite my professional beliefs, I have negative reactions towards people who have a mental illness," where 29/51 (56%) and then 44/51 (86%) answered disagree or strongly disagree during the pre-course and post-course surveys, respectively. When asked, "I would be reluctant to seek help if I had a mental illness" respondents agreed or strongly agreed 17/51 (33%) pre-course and 11/51 (22%) post-course. Statistically significant changes were observed in the following domains: attitudes of health care providers ($p < 0.0001$), disclosure or help seeking behaviour ($p = 0.0008$), and social distance ($p = 0.044$)

Conclusion: Results indicate respondent's willingness to support and treat individuals living with a mental illness. The same group displays hesitancy when seeking out care for their own mental health. Post-class survey results indicate the course was effective with increasing self-reported help seeking behaviours and decreasing stigma related to social distance and health care provider attitudes.

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ERO6. Pharmacy Students' Motivation Challenges and Motivation Regulation Strategies in Collaborative Project-Based Learning

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Objective: To characterize how pharmacy students' motivation is challenged in collaborative project-based learning and what types of strategies students use to motivate themselves, their peers, and the small group.

Method: In a pharmacy entrepreneurship course in the United States, groups of four to five pharmacy students worked on a collaborative project to propose a solution to an authentic ill-defined health care problem (e.g., medication adherence). We selected two extreme cases of voluntary student project groups; a group that rated their motivation high and a group that rated their motivation low. We collected ten video observations of group meetings paired with weekly student ratings of their current motivation level and perceived group challenges. We conducted a directed content analysis (Hsieh & Shannon, 2005) of transcribed student statements for the occurrence of different types of motivation challenges and motivation self-, co-, and socially shared regulation strategies (i.e., how they motivated themselves, their peers, or the group) (Järvelä & Järvenoja, 2011). Two researchers independently coded 20% the data. Since a high inter-coder reliability was reached (Cohen's kappa=0.8), the remaining data was independently coded by one researcher with auditing. Code types were organized into categories and characterized using exemplary and representative student quotes.

Results: Twenty different types of motivation challenges were categorized under 1) *learning events* (e.g., poor grade), 2) *differences between group members' motivation* (e.g., differences in standards), and 3) *low group member(s) motivation* (e.g., low task interest). When students attempted to control for these motivation challenges, they enacted 55 different types of motivation regulation strategies (e.g., establishing a group expectation).

Conclusion: As literature regarding pharmacy student motivation in collaborative project-based learning is sparse, this study was a necessary first step towards increasing researchers' and educators' understanding of the types of motivation challenges students face and how they might overcome these challenges.

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ERO7. A study to investigate how undergraduate pharmacy students develop integrative knowledge about pain

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Keywords: Curriculum integration, transdisciplinary curriculum

Objective: Pain and its management, requires complex understanding of human biological, chemical and practical concepts. Undergraduate students from a Masters of Pharmacy programme in one School of Pharmacy in England, are taught this topic within educational activities aligned to the interdisciplinary level of integration (Harden, 2000). This study explores if and how these students develop integrated knowledge as they experience the curriculum on pain.

Method: Undergraduate students were invited to participate in a set of longitudinal activities during the 5-week teaching course on pain. Consenting students produced weekly concept maps to illustrate what they knew and understood about pain and its management. Each participant concept map was analysed for cognitive progression using a framework assessing for: organisation, integration and concepts. Within weekly interviews, students described what they aimed to illustrate in their concept map. The interviews were transcribed verbatim and transcriptions qualitatively analysed using thematic coding to identify the common themes.

Results: Ten students agreed to participate, contributing 50 concept maps and 50 interviews. As the study progressed, the concept maps demonstrated increased complexity, organisation, integration and knowledge. The singular hierarchies decreased for the majority of participants (n=8), also confirming increased knowledge integration. Students illustrated concepts across all areas of clinical and pharmacy practice, and the pharmaceutical sciences, apart from microbiology, despite being taught this within the context of pain. During the interviews, students reported an integrated approach to learning and over the 5 weeks, were populating a scaffold of interlinking concepts, *e.g*. pathophysiology, pharmacology, *etc*., with more detailed knowledge of pain.

Conclusion: Undergraduate students learning about pain within an interdisciplinary integrated curriculum appear to have developed a road map for integrated thinking before having being taught all the material. Further work is required to investigate if the spiral nature of the programme facilitates the development of this cognitive network.

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ERO8. An evaluation of pharmacy undergraduate student wellbeing

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Keywords: Mental health, emotional health, wellness, student, well being

Objective: To create a snapshot of undergraduate pharmacy student wellbeing and explore students' perceptions of wellbeing at university

Method: A mixed methods study:

- All pharmacy students were asked to complete a wellbeing questionnaire (ESP 2018) at the mid-point of autumn term 2018. The questionnaire listed 34 statements relating to study, finance, physical health, family and friends, work-life balance and emotional health. Students could agree, disagree or choose "not applicable" for each statement. Each statement's response corresponded to a score of 0 or 1, with 34 (100%) being the highest wellbeing score. On completing the questionnaire, students were given their score and information on university wellbeing support services.

- Peer-led Focus groups were undertaken with Year 1, 3 and 4 pharmacy students.

Results: 62% of students completed the wellbeing questionnaire (n=295). The average wellbeing scores for each year were:

Year 1: 64% (range 12-97%) n-101/136

Year 2: 56% (range 12-88%) n=87/99

Year 3: 60% (range 27-94%) n=61/133

Year 4: 55% (range 24-82%) n=46/107

The section with the lowest wellbeing score was work-life balance (average 2.6/6) and the highest was family and friends (average 4.4/6).

17 students attended focus groups (Year 1=5, Year 3=5, Year 4=7). Students reported high levels of academic stress, anxiety, extreme fatigue and disappointment in missing extracurricular activities due to the intense curriculum. Students repressed their emotions, feeling unable to talk to peers or academics, either due to stigma, not burdening others or lack of time.

Conclusion: Overall wellbeing scores were moderate, although some students' wellbeing was as low as 12%, leaving much room for improvement. This data is an important step towards understanding which aspects of university life most affect student wellbeing and how we can best support them. The results are non-generalizable as limited to one school of pharmacy, but do warrant future collaborative research.

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NIO1. A preliminary global analysis of country level factors supporting advanced practice development

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Keywords: Pharmacists, advanced, specialization, policy

Objective: International Pharmaceutical Federation (FIP) established 13 Workforce Development Goals (WDGs), as a guide to support nations in transforming their workforce (FIP, 2017). To facilitate the implementation of WDG4 (Advanced and Specialist Expert Development), FIP conducted a cross-sectional country-level survey as research subsequent to the 2015 Global Report (FIP, 2015). Our objective is to identify key country-level enablers supporting advanced practice policy development for accelerating global progress.

Method: A country-level questionnaire was distributed from July to September 2018. The data were quality assured then coded for analysis. Multiple Correspondence Analysis (MCA) was conducted to identify associative variable and category factors to develop a general global model for advanced practice development.

Results: Forty-five countries initially submitted data. Information about country demographics (WHO region, formal language and world bank income classification) were included as variables. From the model obtained by MCA, there is a marked difference in category clusters between countries with a developed model of advanced practice. The country-level evidence suggests that high-income and upper-middle countries are clustered with a set of category conditions that support advanced practice. Moreover, availability of defined advanced practice frameworks, opportunities to gain formal recognition and practitioner benefits for being recognised as advanced pharmacists have the most influence on the attributes of advanced practice. Workforce policy related to separation between the regulator body and the professional body, and the prescribing system availability currently have less influence on advanced practice development.

Conclusion: There is now a need to enhance data acquisition across a wider a range of countries to validate the policy model (currently being undertaken by FIP).This study identified factors that enhance and contribute to advanced practice policy development in a country. Further work in building this policy model for the advancement of practice development is required to accelerate the progress of advanced practice globally.

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NIO2. Development and implementation of a new experiential program using a framework of integrated Entrustable Professional Activities (EPAs)

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Keywords: Pharmacy, Competency based education, Portfolios, Practicum supervision, Clinical experience

Objective: To develop and implement a new experiential program in a redesigned undergraduate pharmacy degree.

Design: The program was designed to provide students with earlier and enhanced practice experiences. Components included detailed activity descriptions, and efficient supervision models. A framework of Entrustable Professional Activities (EPAs) was implemented. EPAs are a set of discrete, specific tasks which students are expected to undertake in a work integrated learning setting with the goal of being able to perform these tasks without supervision once reaching a specific level of competence (ten Cate et al. 2015). Via a collaborative process EPAs were defined for each placement and practice setting. Students' baseline ability to complete EPAs was assessed in a classroom setting, with the expectation tasks could be performed under supervision on subsequent placements. Placement timing and duration were modified to allow implementation of EPAs as soon as practicable after assessment. Preceptors were briefed and provided with detailed information. An enhanced faculty ePortfolio tool allowed preceptors to record student EPAs and to enable tracking of individual student development. Feedback was sought from students and preceptors.

Results: An EPA framework was introduced for experiential placements in second-year of the new curriculum. Fifteen EPAs were identified for placements in the students' second year, expanding to 25 in year three. By mid-2019 193 second-year students and 231 third-year students will have attended EPA based placements, and received feedback from preceptors regarding their EPA levels. Currently 15 hospitals and 112 community pharmacies have partnered with the faculty to clinically educate students. Six stakeholder feedback sessions have been conducted, and 145 feedback surveys completed Feedback from students and preceptors has been positive; suggestions have been implemented.

Conclusion: An undergraduate experiential program for a new pharmacy curriculum has been successfully developed and implemented using EPAs, a bespoke ePortfolio, and significant workplace partnerships.

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NIO3. Identifying traits and building consensus on priority leadership and professionalism attributes in pharmacy education.

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Objective: To identify and build consensus among faculty/staff educators, preceptors, and students on priority leadership and professionalism attributes for pharmacy student development.

Method: One hundred individuals (27 faculty/staff, 30 preceptors, 43 students) involved in the pharmacy curriculum were invited to participate in a modified Delphi technique. Leadership and professionalism attributes for round 1 of the Delphi were identified from pharmacy education literature (Benner J and Beardsley R et al. 2000; Boyle CJ et al. 2007; Hammer DP et al. 2003). Participants had the opportunity to review the attributes, provide feedback, and add additional traits important for pharmacy student leadership and professional development. Twenty-one leadership and 21 professionalism attributes were included in round 2 of the Delphi. Participants prioritized each leadership attribute and each professionalism attribute as either Highly Important, Important, or Less Important.

Results: An 82% participation rate (24 faculty/staff, 21 preceptors, 37 students) was achieved in round 2 of the Delphi. Eleven leadership and 13 professionalism attributes achieved an overall consensus (a priori set to $\geq 80.0\%$) of being Highly Important or Important for pharmacy student development. Differences were observed among the groups for multiple attributes. For example, "accountable for personal development" was endorsed as a Highly Important or Important leadership attribute by 75.0% of faculty/staff, 100.0% of preceptors, and 70.3% of students. Similarly, differences were observed for leadership attributes "change management" (85.7% faculty/staff, 82.4% preceptors, 48.6% students) and "grit" (71.4% faculty/staff, 47.1% preceptors, 67.6% students) and professionalism attribute "creativity and innovation" (42.9% faculty/staff, 70.6% preceptors, 50.0% students).

Conclusion: The modified Delphi technique can effectively identify and prioritize leadership and professionalism attributes important for pharmacy student development. This process facilitates consensus building and identifies gaps among stakeholders. Identified gaps may represent differing priorities among stakeholders and/or different opportunities for emphasis and development across settings (e.g., classroom, experiential, co-curriculum).

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NIO4. Supported communication skills training: evaluation of a pilot workshop for pharmacy undergraduates.

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Keywords: Aphasia, communication skills, empathy, patients, self efficacy

Objective: Healthcare professionals may lack the skills and confidence to support patients with communication impairments (Burns *et al*., 2012). Supported communication skills training has been used to address this across a range of professions, including speech and language therapy (Finch *et al.,* 2017) occupational therapy and physiotherapy students (Cameron *et al*., 2015). A pilot of supported communication skills training with pharmacy undergraduates was undertaken to evaluate the benefits and assess the value of incorporation into the University of East Anglia (UEA)'s MPharm degree.

Design: The training consisted of one taught session (2 hours, covering components of healthcare communication, communication impairment and the knowledge, skills and resources which can support communication) followed by one practical training session (1 hour, communicating with people with aphasia who are trained to train and provide feedback). All UEA pharmacy undergraduate students were invited to participate in the pilot training. A post-training evaluation form was distributed to all students immediately following the training, consisting of five 5-point Likert scale questions and three open questions.

Results: Twelve students volunteered for the pilot, ten of whom completed the evaluation. Students were unanimously positive about the training, with all agreeing both training sessions were useful, that their knowledge and confidence in supporting people with communication impairment had increased and that they would recommend the training to their peers. Student particularly valued the experiential aspect of the training (e.g. "the amount of time we had and the variety of people we met. It changed my perspective a lot") and shared how it had influenced their future practice (e.g. "I'll definitely be more understanding and won't feel the need to rush them as they're speaking").

Conclusion: Our findings suggest this training can have the same positive impact on pharmacy undergraduates as it has with other healthcare professionals. As a result plans are in place to include it within UEA's MPharm degree.

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PRO1. Transfer of training in the assessment and management of urgent cases to community pharmacy practice

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Objective: Community pharmacy can contribute to meeting demand for patient care for common, self-limiting conditions through commissioned minor ailment schemes. Such schemes are cost effective (Murray, 2016; Watson et al., 2015; Wright, 2016) and provide improved access to treatment for low income groups (Rafferty et al, 2017. The potential to expand the range of conditions managed in this setting resulted in training for pharmacists in the treatment and management of patients requiring urgent care being provided for 14 cohorts. The purpose of this study was to determine the extent to which this training was transferred to practice.

Design: Using a repeated measures design, data were collected from participants one week before (T1), one week after (T2) and two months after training (T3). Validated measures were used to capture two urgent care behaviours (taking a structured history; performing a clinical examination); implementation goals and intentions were collected using open-ended questions at T2. Follow-up of implementation intentions at T3 allowed for further investigation of transfer of learning and barriers to this. Repeated measures analyses were undertaken to establish behaviour change quantitatively; qualitative data were analysed thematically.

Results: Findings suggest the training was successful in changing behaviour and that this was sustained at T3 ($p<0.001$). While intentions to implement practice change were widely reported by participants, only around a third were successful in doing so, with workload, lack of equipment and space, and concerns regarding liability insurance suggested as reasons for transfer of training not taking place.

Conclusion: Community pharmacists can extend the scope of their practice to the treatment and management of patients requiring urgent care. However, currently the practice setting may prevent community pharmacists from providing care for these patients. If learning is to be transferred to practice future training models need to address contextual barriers..

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PRO2. An investigation of the most critical factors influencing enhancement of pharmacy practice and workforce capability

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Objective: To identify common major factors influencing the enhancement of Good Pharmacy Practice (GPP) and capability of the pharmacy workforce in the Western Pacific Region (WPR)

Method: Collaborative decision-making workshops, semi-structure interviews and online surveys were used to gather information, opinions and achieve agreement between pharmacy leaders from the western pacific countries. Modified Tuckman's model incorporated with World Café workshops were used for group development and to identify and prioritise major issues related to four main roles of pharmacists described in the joint FIP/WHO GPP guidelines

Results: 32 pharmacy leaders from 13 of 15 countries of the WPR with pharmacist associations participated in this study. 8 priority issues were identified which provided consensus statements related to enhancement of pharmacy practice and the role of the pharmacist. The most critical factor was related to maintaining individual professional competence: National Competency Standards should be established to enable the formulation of a professional development framework that leads to enhanced pharmacy practice including patient care'. Potential benefits and impacts of competency standards (CS) identified by the study participants included CS as a means to facilitating dialogue with policy makers to enhance practice, publicising the capabilities of pharmacists to general public and leading universities in curriculum development and reviews. Analysis of 5 sets of CS compared with FIP Global Competency Framework (GbCF) showed countries have adopted additional domains for specific areas of practice.

Conclusions: The methodologies adopted in this study overcame cultural and practice differences to ensure equal participation of all delegates. National Competency Standards and Professional Development Frameworks were identified as the common priority and most critical factor for the enhancement of Pharmacy Practice with shared knowledge of the current state of practice. Educators need to consider more widely than the global framework as GbCF domains did not address all requirements of the countries.

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PRO3. Developing Foundation-level Pharmacy Competency Framework in Japan: A survey exploring the applicability of the Global Competency Framework in Japan

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Keywords: Competency Based Education, Pharmacy, Professional Development

Objective: To measure the level of relevance of behavioural statements of the Global Competency Framework (GbCF) (FIPEd, 2012) to Japanese foundation-level pharmacy practice, aiming to investigate the applicability of the GbCF in Japan for developing a national framework for foundation-level pharmacists in Japan.

Method: A cross-sectional, anonymous, online self-completed questionnaire survey was conducted during June and July 2018 in Japan. The questionnaire was adopted from the GbCF which was translated into Japanese using a forward-back translation process. The relevance levels of items of the GbCF were assessed by using 4-point Likert scales.

Snowballing sampling approach was used to reach foundation-level pharmacists in Japan. Collected data was analysed in SPSS quantitatively.

Results: A total 604 usable responses were included in analyses. High levels of relevance levels were found in two clusters ('pharmaceutical public health' and 'pharmaceutical care'), while the other two clusters ('organisation and management' and 'professional/personal') showed significantly low relevance of clusters (relevance=89.6%, 82.5%, 59.6%, and 67.9%, respectively). The study found little engagement of academic sector with framework, while industry sector showed the relevance to all clusters evenly.

Comparing the relevance levels between years working in sectors, the study found there is no progression of relevance in 'organisation and management' and 'professional/personal' competencies during foundation years, which is a worry in terms of the ability of pharmacists taking the management role transitioning towards advanced level, as well as very little professional/personal development.

Conclusion: The study pointed out specific competencies and behaviours which require modifications to adapt the GbCF into Japanese pharmacy practice environment. This is a key step towards development of a national framework in Japan, illustrating current Japanese foundation-level pharmacy practice compared with global standards. The findings will be used as a base for developing a framework for foundation-level pharmacists in Japan.

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PRO4. Impact of a Patient Care Clinic Located within a Pharmacy School on Opioid Utilization

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Keywords: experiential learning, narcotics, pharmacy

Objective: To determine the impact of medication assessments on opioid utilization in ambulatory patients referred to the Medication Assessment Centre (MAC), a pharmacist-run patient care teaching clinic located within a pharmacy school (University of Saskatchewan).

Methods: Retrospective chart audit. Any patient referred to the MAC for any reason during the 2017 calendar year who was taking any opioid at the initial appointment was included. Chart data were extracted in August, 2018 and opioid utilization at the initial MAC visit was compared with opioid utilization at the final documented patient appointment, after MAC pharmacist/student recommendations had been communicated to the physician. Any changes to opioid utilization not directly linked to MAC pharmacist/student recommendations were not included in the analyses.

Results: Of the 129 patients referred to the MAC during the study period, 28% (n=36) were taking an opioid and were included. Mean age of participants was 59.8 years and patients were taking a mean of 15.2 different medications (including opioids and non-opioids) at baseline. The most common opioids utilized were hydromorphone (42%), codeine (33%) and tramadol (17%). The most common indications for opioid use were unspecified chronic pain (56%), migraine (11%) and fibromyalgia (6%). Mean morphine equivalent doses were reduced from 129.7mg per patient at baseline to 108.2mg per patient (p=0.043) as a result of MAC pharmacist/student recommendations. Utilization of adjunctive pain medication (i.e., acetaminophen, non-steroidal anti-inflammatories, duloxetine) were also increased as a result of MAC pharmacist/student recommendations.

Conclusion: Medication assessments provided by pharmacists and students at a patient care clinic, located within a pharmacy school, resulted in statistically significant and clinically important reductions in opioid utilization amongst current opioid users. This study provides additional data to existing evidence regarding the value of this experiential training model on the provision of patient care in the primary health system (Jorgenson, 2016; Lysak, 2018; Jorgenson, 2018).

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TIO1. Popular culture as pedagogy: Exploring pharmacists' roles in society

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Keywords: Popular culture, professional education, blended learning, role perception

Objective: To implement and evaluate popular culture as an instructional approach to explore pharmacists' professional roles in society.

Design: In the Doctor of Pharmacy for Practicing Pharmacists (PharmD) program at the University of Alberta, students explore pharmacists' roles in society in a social and administrative pharmacy course on interprofessional collaboration and teamwork. A blended learning module integrating popular culture was designed to construct new knowledge about pharmacists' roles in society. It combined individual preparatory readings, group work, classroom presentations, and online activities. Students worked in small groups to select and critically evaluate popular culture artefacts representing pharmacists' roles, engagement with interprofessional teams, and professional learning in practice. Students delivered 20 minute presentations including questions. Discussion continued the following week in the online learning environment. Data were collected using an anonymous online questionnaire to evaluate students' experiences with popular culture as a pedagogical approach. The University of Alberta Research Ethics Board approved the evaluation.

Results: A variety of popular culture artefacts depicted pharmacists' roles including television, video, and comic strip. In all artefacts, students perceived that negative stereotypes dominated observing fewer positive portrayals of pharmacists' roles. Students critically reflected on their assumptions about pharmacists' work in response to the discrepancies between their experiences and what was presented. The use of popular culture in this course was described as enjoyable and inspired students relate to their roles in new ways (Jubas & Knutson, 2013). Students identified the need to explore how professionals are defined by the work they do (Pratt, Rockmann, & Kaufmann, 2006), demonstrate pharmacists expanded scope of practice and "true" roles in health care, and plan action to counter role stereotypes.

Conclusion: This evaluation suggests that popular culture is an effective instructional approach to explore pharmacist roles and professional role identities.

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TIO2. Learning in partnership: Leadership training as a cornerstone for interprofessional education between GPs and community pharmacists

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Keywords: Interprofessional relationship, leadership training

Objective: Interprofessional education (IPE), defined as 'Occasions where two or more professions learn with, from and about each other to improved collaboration and the quality of care' (Barr, 2002), is vital for development of new NHS models of patient care. This project aimed to develop and evaluate an IPE programme to encourage the development of networks of Community Pharmacists and GPs, and to deepen understanding of each other's NHS contracts and their role in helping achieve better patient outcomes.

Design: Leadership training provided common ground for IPE with GPs and community pharmacists. Five pairs of GPs and community pharmacists, recruited from London and the South East, attended an initial project induction event and five half-day sessions focussing on leadership training based on the Healthcare Leadership Model (NHS Leadership Academy, 2013). The pairs then spent four half day placements in each other's practice. As an outcome of these activities, each pair was required to jointly undertake, write up and present a Quality Improvement Project (QIP). The leadership training was evaluated using a questionnaire containing open questions developed from previously used questionnaires. Responses were scrutinised to identify and frequency-count themes.

Results: Eight responses were received. Ten overarching themes emerged. The most frequent themes were 'developing understanding' and 'collaborative working', as illustrated by the following quotes:
'I have a new found respect for Doctors now and realise we are in the same boat.'

'We can work together to achieve a common goal.'

Conclusion: The focus on leadership training enabled pharmacists and GPs to learn from, with and about each other through the identification of similar challenges and issues. This provided a strong

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TIO3. Using Metacognition to Sensitize Students to Computerized Provider Order Entry (CPOE) Errors

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Keywords: Simulation, Technology in Education

Objective: To determine the impact of a metacognition and error identification activity on student ability to identify order entry errors.

Method: Course faculty developed six patient cases in EHR Go®, an educational electronic health records system. Pharmacy students input all new medications in the computerized order entry (CPOE) portal after working up each patient. At the second half of the semester, course faculty collated all order-entries with errors. They identified fifteen orders, which contained the top errors made by students. Faculty selected five for the pre-exercise, five for the in-class activity, and five for the post-exercise. For the pre-activity, students individually identified errors in the orders. Students then attended a discussion session and participated in a metacognitive exercise highlighting the importance of correct order entry. An instructor then discussed the errors in the pre-activity. Students then identified errors on the second set of orders while instructors assisted. A week later, students received the final set of orders and identified errors on those entries. Students also completed a pre/post patient-safety survey. A few weeks post-intervention, faculty assigned a final patient case. To identify any improvement in order entry, we compared entries from an identical case from the 2017 cohort versus the 2018 cohort.

Results: Two hundred students participated in the intervention and 200 students were included in the 2017 control group. The average score of correctly identified mistakes from the pre-activity to the post-activity increased statistically significantly from 22% to 62.8%. On the final case, the 2017 cohort had an error rate of 44% compared to 30% in 2018 group. Ninety-four percent of students agreed that the activity demonstrated the consequences of incorrectly ordering medications.

Conclusion: Educators looking to improve student error entry and identification of orders entered by another healthcare professional may consider adopting this educational strategy.

References:

TIO4. Developing patient-centred care: a longitudinal hospital volunteering placement in the pharmacy undergraduate curriculum

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Keywords: Student placement, professional development, patient education, student volunteers

Objective: Unlike Medical and Nursing degree programmes that include repeated and extended exposure to patients, UK Pharmacy programmes feature shorter, mainly observational placements, limiting student opportunities to understand and interact with the patient journey and to develop patient-centred care. To expose pharmacy students early and repeatedly to patient-facing activities, a placement experience with the Cardiff and Vale University Health Board Volunteering Service has been developed for Year 1 undergraduates.

Design: In collaboration with the Volunteering Service, learning outcomes and a workbook were agreed. Pre-requisite training for working within the National Health Service, and 'Dementia Friend' accreditation was undertaken. Students were allocated to a ward and received a local induction. A total of nine half-days of volunteering over two semesters (ongoing) were planned, including activities such as befriending patients, undertaking patient satisfaction surveys, providing patient information and supporting patients in activity workshops. Debriefing sessions were also designed. Students kept a reflective diary (reviewed on an ongoing basis), and must obtain sign-off from the ward supervisor in order to meet the learning outcomes.

Results: After the first three sessions, the cohort were convened and informal feedback was gathered (a formal evaluation at the end of the placement series will also be conducted). Initial feedback confirmed placements provided significant opportunities to engage with patients, develop transferable skills and reflect on the dynamics of hospital wards. On some wards patients were particularly unwell, making interactions less successful. Students articulated they would like the opportunity to rotate around wards. This feedback has been addressed for the remaining five sessions. Anecdotal supervisor feedback highlighted increased capacity for supporting patients, due to student support.

Conclusion: Engaging pharmacy students in volunteering service placements provides the opportunity to understand the patient journey in secondary care, develop transferable skills and contributes to the voluntary service maximising support for patients.

References:

TIO5. A novel approach to team-based simulation exercises for MPharm Year 4 students, within a community pharmacy environment.

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Keywords: Simulation, experiential learning, teaching methods, peer learning

Objective: Year 4 MPharm students often struggle understanding the need to use their cumulative pharmacy practice learning in the workplace. We designed a simulation enabling them to apply the pharmacy practice knowledge, skills and behaviours taught. This took place in workshops within the mock pharmacy at UCL Green Light Pharmacy Educational Centre.

Method: In teams of 6-8, students were briefed, given time to prepare, and assigned a role (eg pharmacist) in the mock pharmacy for 35 minutes, or as simulated characters. During the simulation they had medicines and equipment as in a pharmacy. The tutor decided which simulated characters presented themselves to the "pharmacy team" and when. Green Light pharmacists observed and provided technical support, as needed. Groups were rotated, and scenarios changed, so students experienced all roles. Peer-to-peer feedback sessions, based on Pendleton's model, took place along with reflection exercises, to identify areas of CPD. A Qualtrics questionnaire was provided, 8 questions on a 5 level Likert scale and a free text section.

Results: Responses (n=41), collated 7 days later, represented 23.6% of the cohort. Students' agreement (combining strongly, and somewhat, agree) for q 1-3 is identical (95.12%), suggesting correlation between their enjoyment of the exercise, how it tested their knowledge of pharmacy practice and that it was not tested traditionally. The largest disagreement (a combination of somewhat, and strongly, disagree) was for q8 (9.74%) and q6 (7.32%), suggesting correlation between how well the simulation prepared them for the workplace (during pre-registration) and how they feel they communicate with patients.

Conclusion: This allowed students to apply their pharmacy teaching from all their MPharm, allowing us to demonstrate the necessity of utilising this in future. Also, encouraging students reflection on their preparedness for the workplace and CPD needs. Further work would consider patients vs actors vs students as simulated characters.

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TIO6. Listening to the life stories of older people: an opportunity for transformative learning

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Keywords: Educational methods, aging, older adults

Objective: To describe an undergraduate, elective module, designed to transform the manner in which pharmacy students view and relate to older people. The module seeks to deepen students understandings of the complexities and difficulties associated with aging, in order to empower the students to become practitioners capable of caring for and meeting the healthcare and more specifically, the medicine needs of older people.

Design: The module combines a theoretical, experiential and research approach. The theoretical component is covered by student-led seminars, during which pairs of students present on topics relevant to aging. Central to the module is the experiential component that involves the student pairs conducting a series of visits to an older person. During the visits the students encourage the older person to tell their life stories and in a conversational manner explore his or her experiences of the aging process and associated healthcare issues and experiences. One of the visits forms the basis for a structured qualitative research component, in which, through in-depth interviews, the students specifically explore older people's relationships with and experiences and perceptions of pharmacists. By means of guided reflections and engaged discourse throughout the module the students are encouraged to identify, challenge and transform their understanding, assumptions and beliefs about aging and their behaviour toward older people.

Results: Both formal and informal feedback and student reflections collected over the past three years suggest that the module makes a substantial contribution to students' beliefs and assumptions about older people. It provides students with deepened insights of the complexities, struggles and joys of ageing and a heightened awareness of the need to treat each person as an individual with a history and life story.

Conclusion: Listening to the life-stories of older people can provide transformative learning opportunities that prepare pharmacy students to provide person-centred care.

References:

TIO7. Utilising *e-stream* technology to develop the consultation skills of pharmacy undergraduate students at King's College London

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Keywords: Technology uses in education, video technology, communication skills, feedback, performance

Objective: At King's, consultations skills development through patient simulation and then real-world practice commences in year 2 of the MPharm programme and is built upon in subsequent years. Although students receive verbal feedback, there is no opportunity for students to further reflect on their consultation skills following the patient simulation class. Following the introduction of e-stream technology, we evaluated how this technology would enrich the feedback received by students on their consultation skills

Method: Students were filmed using the technology whilst consulting with 'patients' in a simulated environment. Two experienced pharmacists reviewed each student's video following this and provided electronic written feedback on their consultation skills. Students were then asked to complete an evaluation form to provide an understanding into how the feedback has helped them develop their consultation skills.

Results: During academic year 2017/2018, 94 students (82%) were filmed. Individual feedback was received by 86 (91%) students of which 84 (98%) completed an evaluation form. The majority of students (>94%) reported gaining a deeper understanding of their strengths and weaknesses of their consultation performance. For instance, one student stated *'learnt about the weakness that I have such as not asking enough questions to choose the most appropriate medication'*. Students also commented on the benefits of watching the video: *'I have watched the video and saw the errors I have made, it helped me to improve on my skills by allowing me to see where I went wrong'*.

Conclusion: Students report that feedback received through e-stream technology is helpful in developing their consultation skills and provides them with an opportunity to reflect outside of the classroom environment. The process has also identified common areas of development required by all students, which faculty staff can focus on, moving forward.

References:

TIO8. Interprofessional Mind-Body Course to Support Resiliency and Well Being Among Health Professional Students

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Keywords: Resilience, Well Being, Interprofessional, Educational Methods, Burnout

Objective: To develop an educational strategy that provides skills for positive behavioural adaptations that can help healthcare professional students manage stress and resist burnout.

Design: An interprofessional(IP) mind-body elective course was developed and implemented in collaboration with the Centre for Integrative Health & Wellness at the University of Cincinnati. Fifty-seven (4 pharmacy) faculty from 8 colleges over 6 years received intensive training regarding the effects of stress on the body complemented with tools and strategies to decrease stress. Units within the course consist of 10 IP students with 1-2 faculty meeting 2 hours each week. The environment of time spent together is peaceful and supportive. Education regarding the physiology & impact of the mind-body connection is provided and stress reduction tools are taught within the modules. Students apply the learned tools throughout the week and discuss their experiences within the meetings.

Results: Fifty-nine pharmacy students have participated in the course over the last 3 years with over 200 students from other colleges within the University. All pharmacy students completed a course survey. Mean age was 24, 76%(45)were female and 69% (41)were Caucasian. Majority of the students (97%) rated their health as good to excellent. Students who participated in the Mind Body program showed statistically significant increase in their Perspective Taking (*pre 18.9 vs 22.42, p<.05*), resilience (*pre 19.3 vs 21.1, p<.05*), mindfulness (*pre 44.19 vs 48.38, p<.05*) and decrease in the PROMIS sleep disturbance measure (*pre 56.58 vs 51.8, p<.05*).

Conclusion: Students reported that this program gave them ways to cope and to deal with stress and that their resiliency could be improved with more similar workshops, mentorship, and better access to wellness resources at school. This approach is successful for enhancing well-being of pharmacy students and providing them skills for resisting burnout in the future.

References: